

DART SERVICE INSTRUCTION

TO AMEND INSTRUCTIONS FOR CONTINUED AIRWORTHINESS

ICA-D412-694 REV.1 OR LATER APPROVED REVISION
REF. TCCA STC: SH05-10
REF. FAA STC: SR02086NY
REF EASA STC: EASA.IM.R.S.01085

1.0 PURPOSE:

The purpose of this Dart Service Instruction (DSI) is to provide a procedure for repairing the damage on the D412-694-011 Spacedoor Kits removed from Bell 412EP S/N 36516 and S/N 36563.

2.0 PROCEDURE:

2.1 PREPARATION:

To prepare the damaged areas of the door for repair:

- 1) Remove paint, primer, and damaged laminate/foam from the areas to be repaired.
- 2) Remove dust and grease from the areas to be repaired with acetone or equivalent solvent. Wipe the solvent before drying.

2.2 FOAM REPAIR:

For areas of the doors with surface damage to the foam similar to Figure 1, repair as follows:

- 1) Fill voids/dents in the foam with Hysol EA934NA adhesive.
- 2) Layup a minimum of 3 layers of 9 oz 7781 Cloth using Hysol 9309NA Resin over the damaged area with a 1" overlap.
- 3) Once the resin has cured, blend/sand the repaired area to create a smooth transition with the rest of the door.

2.3 DELAMINATION REPAIR:

For areas of the doors with delamination similar to Figure 2, repair as follows:

- 1) Strip away the laminate plies above the delamination leaving a recessed area in the door skin.
- 2) Layup a minimum of 3 layers of 9 oz 7781 Cloth using Hysol 9309NA Resin over the damaged area with a 1" overlap.
- 3) Once the resin has cured, blend/sand the repaired area to create a smooth transition with the rest of the door.


CANADA
DEPARTMENT OF TRANSPORT
AIRCRAFT CERTIFICATION
BRANCH
DAO # 01-O-01

APPROVED

BY: 
D. SHEPHERD (DE # 02)

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A	NEW ISSUE (REASON ECR 502)	SAD	23.04.10
REV.	DESCRIPTION	BY	DATE
DESIGN	SAD	DART AEROSPACE HAWKESBURY, ONTARIO, CANADA	
DRAWN	SAD		
CHECKED	MB	DRAWING NO.	REV. A
MFG. APPR.	N/A	DSI 9905	SHEET 1 OF 5
APPROVED	SAD	TITLE	SCALE
DE APPR.	DS 	SPACEDOOR REPAIR	NTS
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2.4 LATCH AREA REPAIR:

For areas of the doors with damage to the latching areas similar to Figure 3, repair as follows:


- 1) Remove the D3144-X doublers and D3116-5-0680 seals that are installed on the aft edge of the D412-694-03/-04 Hinge Door Assy. Remove the D3149-1 Striker Plate and D3150-1 Guide from the latching areas of the D412-694-03/-04 Hinge Door Assy.
- 2) Sand/remove the damaged laminate on the outer surface of the door to expose the aluminum doubler in the latching area a minimum of 1" on either side of the latching cutout.
- 3) Carefully cut/remove the damaged aluminum doubler a minimum of 1" on either side of the latching cutout to leave just the inner door frame.
- 4) Fabricate 2x replacement aluminum doublers from 0.032" thick 2024-T3 aluminum.
- 5) Scuff doublers with 80 grit sandpaper and treat with alodine per MIL-C-5541.
- 6) Bond replacement doublers into place against the door frame (one on each side) using Hysol EA934NA adhesive.
- 7) Layup a minimum of 3 layers of 9 oz 7781 Cloth using Hysol 9309NA Resin over the repaired area with a 1" overlap.
- 8) Once the resin has cured, blend/sand the repaired area to create a smooth transition with the rest of the door.
- 9) Cut a 1.50" x 0.40" latch opening through the repaired area of the door using the original latch opening as a guide.
- 10) Touch up door finish in accordance with Table 5-2 of ICA-D412-694.
- 11) Install replacement D3149-1 Striker Plates and D3150-1 Guides in the latching areas of the D412-694-03/-04 Hinge Door Assy using MS24694-S56 screws, AN960JD10LL washers and MS20142L3 nuts. Install replacement D3144-XXX doublers with D3116-5-0680 seals along the aft edge of the D412-694-03/-04 Hinge Door Assy using BSP45 rivets.

2.5 CORROSION REPAIR:

2.5.1 For corrosion damage similar to Figure 4, repair as follows:

- 1) Strip away the laminate plies above the aluminum doubler in the door.
- 2) Remove damaged doubler as shown in Figure 4.
- 3) Fabricate a replacement doubler from 0.032" thick 2024-T3 aluminum.
- 4) Scuff doubler with 80 grit sandpaper and treat with Alodine per MIL-C-5541.
- 5) Bond replacement doubler to the foam using Hysol EA934NA adhesive.
- 6) Layup a minimum of 3 layers of 9 oz 7781 cloth using Hysol 9309NA resin over the repaired area with a 1" overlap.
- 7) Once the resin has cured, blend/sand the repaired area to create a smooth transition with the rest of the door.

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MFG. APPR.	N/A	DSI 9905	SHEET 2 OF 5
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2.5.2 For corrosion damage similar to Figure 5, repair as follows:

- 1) Strip away the laminate plies above the aluminum doubler in the door.
- 2) Remove damaged doubler up to the red line as shown in Figure 5.
- 3) Fabricate a filler from 0.032" thick 2024-T3 aluminum to replace the doubler that has been removed.
- 4) Fabricate a doubler from 0.032" thick 2024-T3 aluminum up to the blue line as shown in Figure 5.
- 5) Scuff filler and doubler with 80 grit sandpaper and treat with Alodine per MIL-C-5541.
- 6) Install filler and doubler using NAS9303B4-XX rivets installed along the black lines in Figure 5.
- 7) Layup a minimum of 3 layers of 9 oz 7781 cloth using Hysol 9309NA resin over the repaired area with a 1" overlap.
- 8) Once the resin has cured, blend/sand the repaired area to create a smooth transition with the rest of the door

2.6 CLOSEOUT:

Once all composite repairs have been completed and the resin has cured:

- 1) Touch up door finish as required in accordance with Table 5-2 of ICA-D412-694.
- 2) Reinstall the repaired door on the aircraft in accordance with Section 52.2 of ICA-D412-694 or Section 3.1 of IIN-D412-694.
- 3) Perform the Operational Check and Adjustment as required per Section 52.3 of ICA-D412-694 or Section 3.5 of IIN-D412-694
- 4) Update Aircraft Logbook to indicate that DSI 9905 has been performed.

3.0 WEIGHT AND BALANCE:

There is negligible effect on weight and balance associated with these repairs.

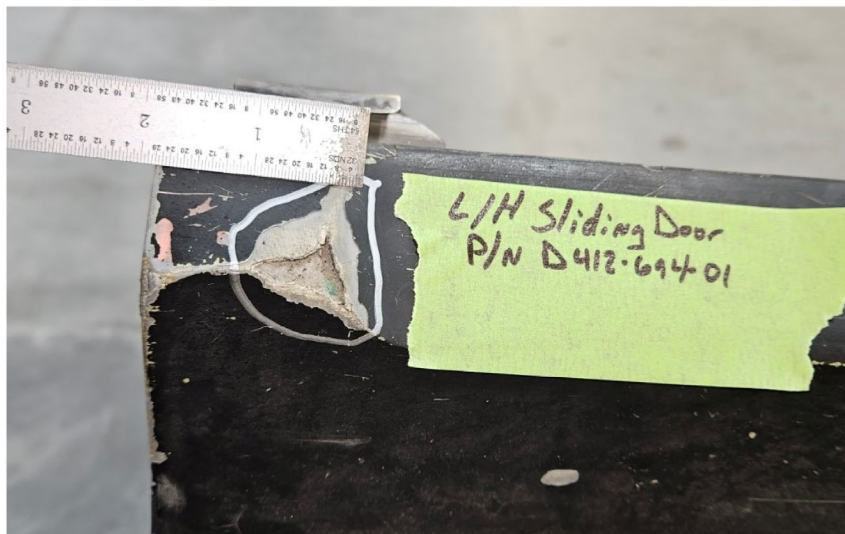


FIGURE 1: SURFACE DAMAGE TO THE FOAM

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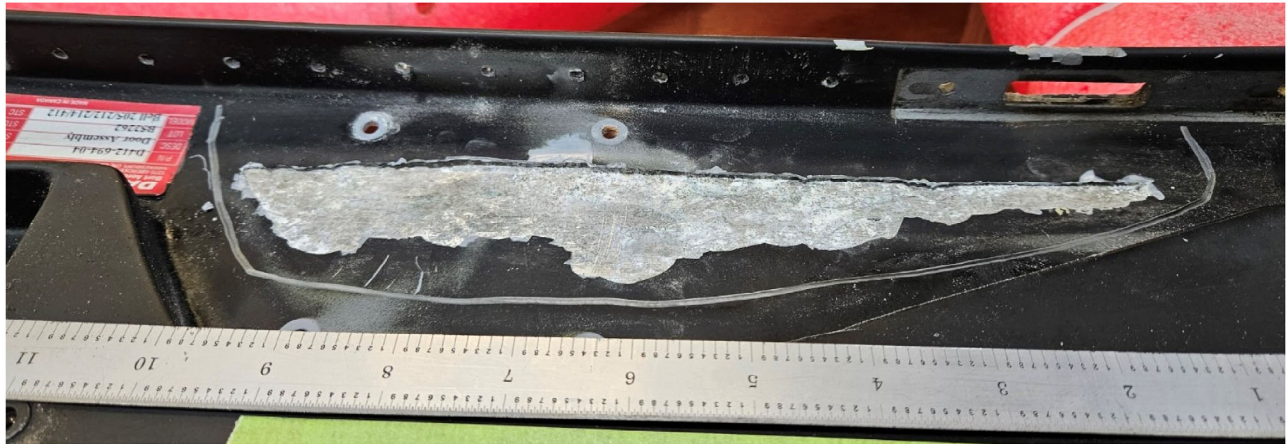


FIGURE 2: DOOR DELAMINATION



FIGURE 3: DOOR LATCH REPAIR

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FIGURE 4: CORROSION DAMAGE (LOWER DOOR)

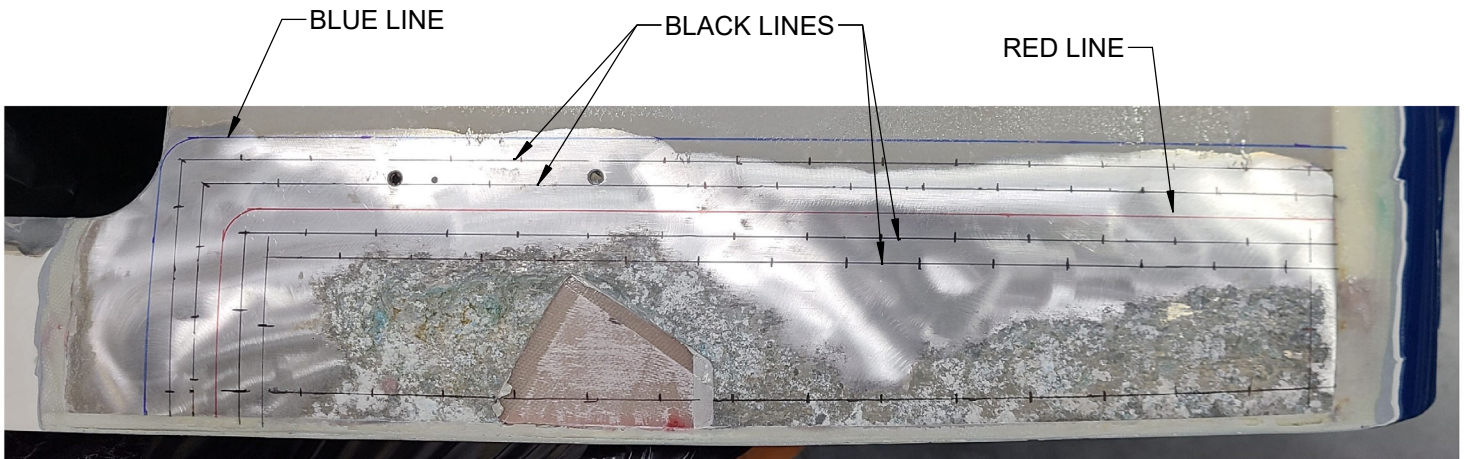


FIGURE 5: CORROSION AND DOUBLER DAMAGE (HINGE DOORS)

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